# Overview of Urban Agriculture and Food Security in West African Cities

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August, 2001
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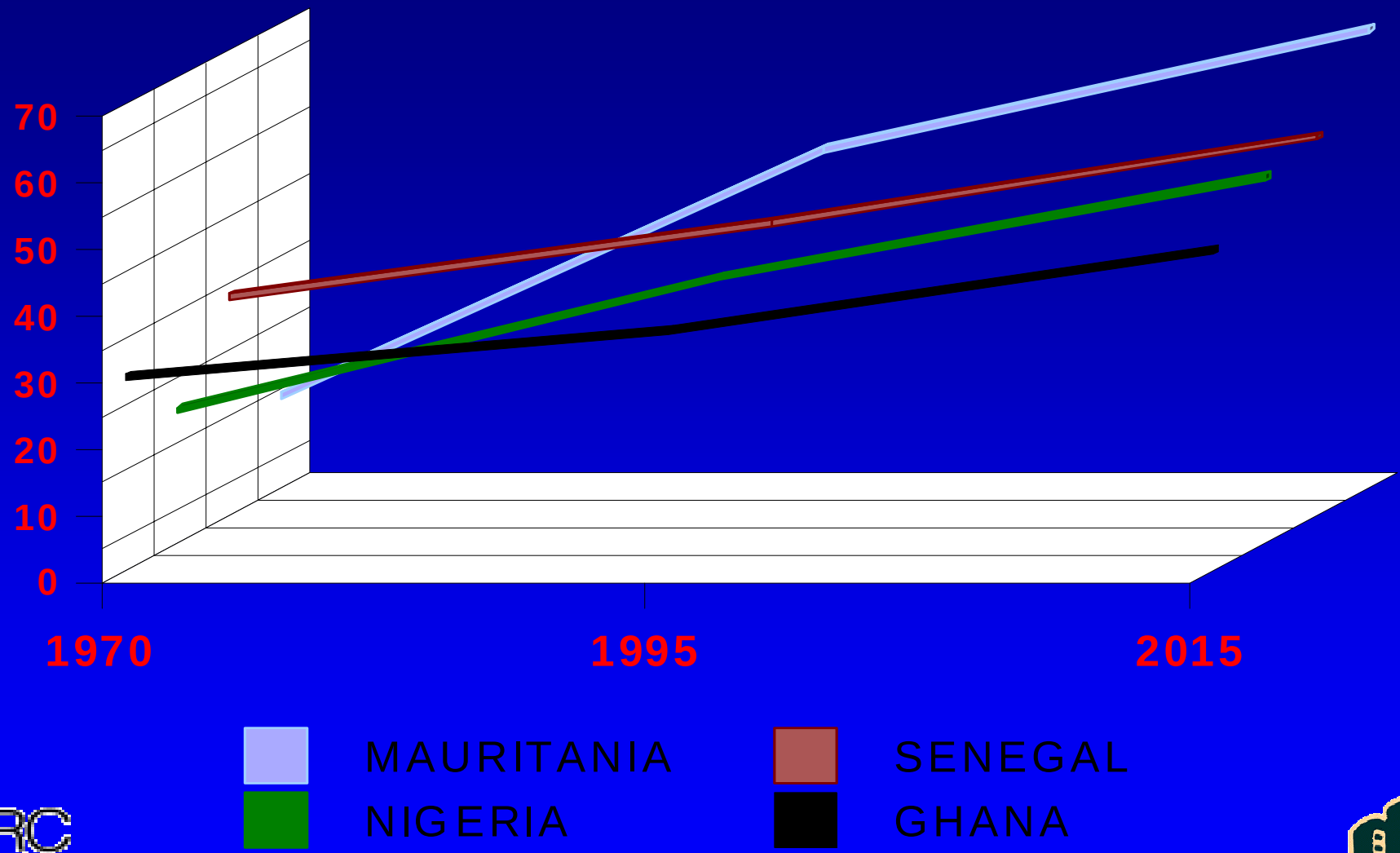
# Global urban demographic trends

- Global population is currently at 6 billion, and may reach 9 billion by 2050
- Urban-rural distribution has been changing, in favour of the urban
- 1970 35:65
- 1995 45:55
- 2015 55: 45

# Urban Demographic Trends (West Africa)

- Rapid urbanization trend is even faster in West Africa
- Urban population was 4% of total in 1930
- 40% of total in 1990
- Projected to reach 60% by the year 2020

# Urban population growth rates in West Africa

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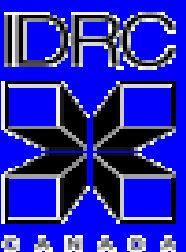
# Consequences of Rapid Urban Growth

- Unplanned and informal settlements
- Pollution from urban wastes
- Increased level of urban food insecurity and malnutrition
- Increasing urban poverty, accompanied by a widening income gap

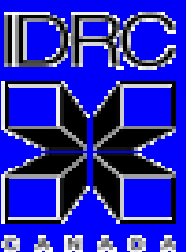



# Structure of Presentation

- What is Urban Agriculture
  roles and functions
- Deconstruct Concept of Food Security
  4 components
- Present data

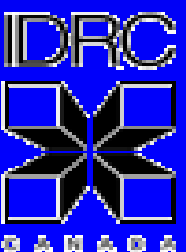
  to show how well or otherwise UA is responding to pertinent components
- Recommend research & development activities

  to alleviate constraints & strengthen opportunities for UA to respond more effectively to food security demands




# What is Urban Agriculture

- Urban Agriculture is the production of food within and at the periphery of cities
- Urban agriculture includes any activity associated with growing crops and some forms of livestock in or very near cities for local consumption, either by the producers themselves or by others when food is marketed (Rees 1997)
- Urban agriculture is an industry located within (intra-urban) or on the fringe (peri-urban) of a town, an urban centre, a city or metropolis which grows or raises, processes and distributes a diverstiy of food and non-food products and services found in an around that urban area, and in turn supplying human and material resources, products and services largely to that urban area (Mougeot, 1999)




# UA Roles & Functions

## NUTRITIONAL

-improved household nutrition

- improved health

## ECONOMIC

-gainful employment

- fungibility

## ENVIRONMENTAL

-household/community waste recycling

- safe waste water reuse

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# Defining Elements & Components of Selected UA Definitions

1. Location
   - Emphasis on adminstrative boundaries & municipal limits
2. Purpose
   - Market-oriented, local consumption & sale, economic role
3. Products
   - Food & non-food products
4. Roles
   - Nutrition, employment, sanitation
5. Legal [illegal] status
   - Municipal regulations

# UA Working Definition

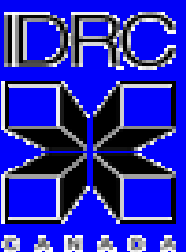
- Production of food, non-food plant and tree crops, and animal husbandry, both within and fringing urban areas. (OECD, 1998)

- *Physical and economic access* by all people at all times to sufficient, *safe* and nutritious food to meet their dietary needs and *food preferences* for an active and healthy life.

# Food Security

# Food Security Concept and Implications for UA

1. Physical access
   - availability in terms of quantity
   - production of sufficient quantities of food of a reasonable variety and of an acceptable quality
2. Economic access
   - affordability or ability to purchase
3. Food preference
   - supply of a large variety of food
4. Active and health life
   - supply of nutritious and safe foods

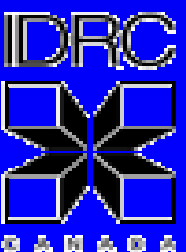



# 1. Contribution to Physical Access

- The proportion of urban dwellers involved in food production
- The proportion of food consumed within a city, that comes from production within that city
- The area of land within a city used for food production

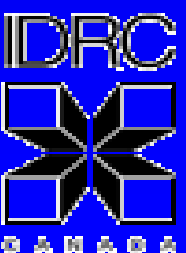
# Significance of Urban Food Production

| CITY | Proportion of Urban Dwellers Involved in Urban Agriculture |
|---|---|
| Kano | 75% |
| Ougadougo | 36% |
| Yaounde | 35% |
| Zaria | 80%* |
| Kumasi | 25%* |
| Lusaka | 45-60% |
| Harare | 80% |
| Kampala | 25-57% |
| Nairobi<br>Kitui<br>Mombasa | 29%<br>57%<br>30% |
| Dar Es Salaam | 44-70% |
| * Livestock keepers (goats, sheep and poultry) | |




# Contribution to Urban Food Demands by Urban Producers

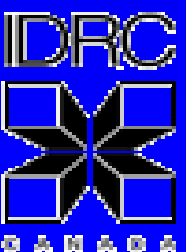
| CITY | PROPORTION OF DEMAND SUPPLIED |
|---|---|
| Dakar | 70% (vegetables) |
| Bamako | 100% (vegetables)<br>50% (poultry) |
| Accra | 90% (vegetables) |
| Guinea-Bissau | 90% (leafy vegetables) |
| Kampala | 70% (poultry meat & eggs) |
| Singapore | 80% (vegetables)<br>25% (poultry meat) |
| Shanghai | 76 % (vegetables) |




# Area of Urban Land Used for Food Production

- 66 % (Zaria)
- 23% (Dar-es-Salaam)
- 15-20% (Harare)
- 20-60% Range in the literature

Taken together, these indices suggest that UA contributes substantially to meeting urban food security in terms of the quantity of the food produced (Physical access)

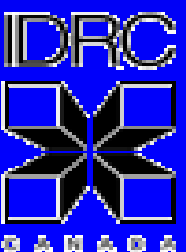



# Production Limitations

- Small plot sizes
  - < 2 Ha
  - 0.04 Ha in Bobo Dioulasso
- Low productivity
  - yields equivalent to 66-165 tons (Taiwan/USA)
  - yields of 100kg/ha for lettuce, to 350kg/ha (Ethiopia)

# 2. Contribution to Economic Access

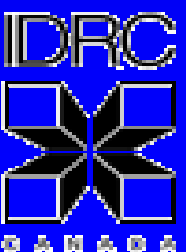
- Economic access to food depends on a variety of factors
  - including incomes and food market prices
- Economic access is poor when incomes are low and/or food prices are high
  - because of inefficient food production, supply and distribution
- Direct relationship between household food insecurity and the proportion of household income spent on food procurement




# An Index of Food Insecurity

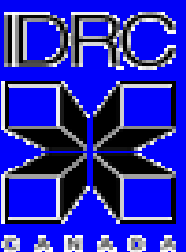
## Proportion of Income Spent on Food by Low Income Urban Dwellers

| CITY | INCOME SPENT ON FOOD |
|---|---|
| Bamako | 32-64% |
| Kinshasa | 60% |
| Nairobi | 40-60% |
| Dar es Salaam | 85% |
| La Florida | 50% |
| Bangkok | 60% |
| Metropolitan USA | 34% |




# Direct Contribution of UA to Economic Access

- Through the phenomenon of fungibility
- Households produce a portion of their food needs, and will not by the same type of foods
- Monetary value and savings from food produced for own consumption range from 20 to 60%
- Such savings could then be used to buy other nutritious food stuffs they would not have been able to afford.




# Indirect Contribution of UA to Economic Access

- A reduction in food market prices, as a result of more efficient production systems
- Taking advantage of market proximity to reduce supply and distribution costs.

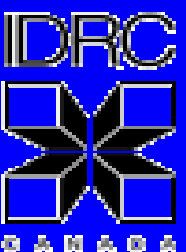
# 3. Contribution to Food Preference

## Variety of Food Items Produced by Urban Farmers

| Leafy Vegetables | Vegetables | Fruits | Staple Crops | Livestock Products | City |
|---|---|---|---|---|---|
| Bissap, Juxatu | Green bean, tomatoes, melon, red pepper, cabbage, aubergine, onions, okra | Watermelon, mango | Potatoes | Milk, broilers, eggs | Dakar, Thies |
| Spinach, lettuce | Okra, carrot, sorrel, sugarcane | Mango, guava, cashew, orange, pommegrade, sugarcane | Maize | | Kano |
| Telferia, water leaf, bitter leaf, fluted gourd | Garden eggs | | Sweet potatoes | | Enugu |
| Cassava leaves, amaranthus, morelles | | | Cassava | Poultry, sheep & goat meats, milk | Brazzaville, Bamako |
| Salad, brussel sprouts, mints | Onion, green bean, aubergine | | | | Bobo-Dioulasso |

# 4. Contribution to an Active & Healthy Life

- The physical and economic access component
  - sufficient quantities at affordable prices
- The food preference component
  - a reasonable variety of products
- Active and healthy life component
  - supply of nutritious and safe foods

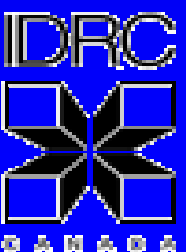



# Contribution to an active & healthy life

- Proximity to large concentrations of people
- Production system more often than not of an intensive nature

*BENEFITS:*

- Supply of a large quantity & variety of fresh, perishable foods
  - minimal post harvest losses in nutritive value
- Improved nutrition
  - regular access to home grown high quality feeds, such as fruits, vegetables and meats, particularly for low-income households




# Contribution of UA to Health Status

| Observation | Conclusion |
|---|---|
| Children of low income farmers as healthy as those of wealthy & healthier than those of low income non farming families | Urban food production contributed to such good nutritional status of the low income family children Riley 1987 (Kampala) |
| Compared low income farming and non-farming households in Nairobi | Farming households better off, in terms of energy & protein consumption Mwange 95(Nairobi) |
| Positive and significant association between UA and higher nutritional status in children (height for age) | Improved nutritional status is a result of higher and stable access to food from UA production Maxwell et al 1998 (Kampala) |
| Observed no difference in the nutritional status of children from farming and non-farming households in Accra. Maxwell 1998 | |

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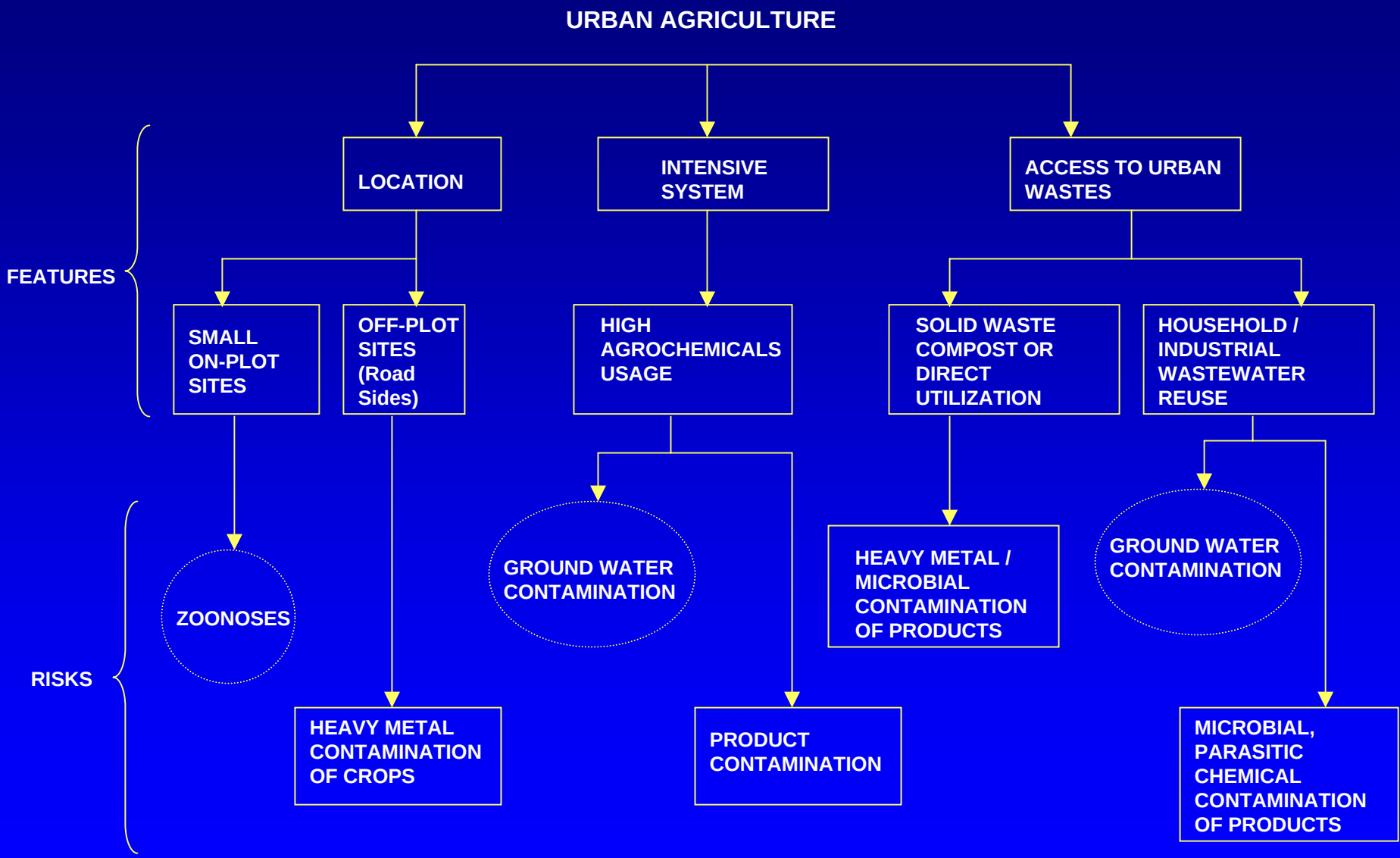
# Contribution to an active & healthy life

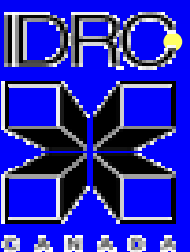
- **B**alance of evidence is that urban farming contributes positively to the nutritional status of low income urban farming households
- Which is why several development agencies recommend home gardening as a nutritional solution to urban poverty related food insecurity.

# Health risks associated with specific UA features



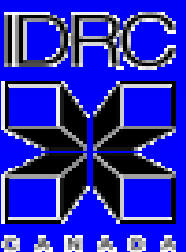
# Risk-Mitigating Measures

- Plant further away from roadsides
- Grow seeds and tubers, instead of leafy vegetables in polluted soils or near polluted rivers because metal absorption rates are lower for the former
- Advocate and encourage the utilization of treated, instead of raw waste water for vegetable production
- Restrict the use of untreated waste water to irrigate non-food crops, tree-crops, food crops eaten cooked, ornamentals and livestock feeds
- Encourage the utilization of irrigation techniques with reduced chances of contaminating crops




# Research & Development Needs

- Sustainable productivity increases through the development of appropriate production systems
- Food quality and public health concerns, with efforts focussed on eliminating or minimizing the risks of chronic chemical toxicity, microbial infections and parasitic infestations
- Socio-economic dimensions, including access to credit, land and other essential inputs such as water, and increased profitability




# Sustainable productivity increases through the development of appropriate production systems

- Development of horticultural production systems for efficient crop rotation, water and other inputs use, particularly on small to medium sized plots
- Development of livestock production systems suitable for confined, space restricted animals
- Refinement of the closing the ‘closing the nutrient loop’ concept as applicable to urban and peri-urban crop-livestock systems

# Food Quality & Public Health Issues

- Development of small-scale community managed biological systems for household waste water treatment
- Establishment of quality norms for treated waste water and suitability for specific products
- Establishment of solid waste management and recycling systems targeted towards providing 'clean' production inputs for urban agriculture (e.g. safe, good quality and affordable composts)


# Socio- Economic Dimensions

- Organization and capacity development of producers groups
- Studies on the economic profitability and contribution to urban economy of specific urban agriculture enterprises
- Policy measures for medium to long term access to land for urban agriculture activities